Personal — Not for Abstracting

THE AUSTRALIAN PLANT DISEASE RECORDER.

Volume 1. Number 2. April, 1949.

Editor: F.C. BUTLER, Biological Branch,
Department of Agriculture, Box 36A,
G.P.O., Sydney.

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PLANT DISEASE NOTES.

CEREALS AND GRASSES.

DISCOLOURED HEADS AND OTHER MELANISTIC DISTURBANCES IN WHEAT:

In economic terms melanistic disturbances in wheat do not appear to be very important but they were more evident than usual in South Australia last year and we would be interested to hear the experiences of others.

It seems clear that etiologically the problem is complex. The Canadians, especially in recent years, Hagborg (Can. J. Res. 14 Sect. C 347) have done much to clarify a problem which seems common to us both. Their findings seem to be equally applicable here though emphasis is different. In respect to pathogenic agents we found that Alternaria (A. tenuis?) was commonly associated with a glume blotch and in some varieties, especially Quadrat, with Black point of the grain. Indeed the association of Alternaria with a particular set of symptoms was so uniform that we felt justified in describing one of our types of discoloured heads as Alternaria blotch. Its prevalence was attributed to the incidence of bountiful rains during the period that most varieties were flowering. On the other hand we found no evidence of the presence of either one of the two fairly well defined bacterial diseases which may result in discoloured heads nor was glume blotch (Septoria nodorum) evident. This latter disease has occasionally been seen in previous years but has never been noted as prevalent. Granting the position that a fair proportion of the discoloured heads noted last year was due to an infection and especially by Alternaria there remained a fair number of cases where pathogenic organisms did not seem to be concerned. This tallies, too, with Canadian experience where various suggestions, e.g., the adverse effects of high humidity, high light intensity have been made. A more fundamental suggestion, with more sinister implications, lies in the view (Goulden and Neatby Sci. Agric. 9 : 575) that the tendency or potential to melanism is controlled by a gene which is closely if not completely linked with one or more determining rust resistance. We certainly have noticed that rust resistant varieties developed in South Australia (with Hope in their ancestry) are the most subject to melanistic disturbance. However, such disturbances do not seem to be confined entirely to such varieties. It looks as if the plant breeders will need to keep this problem in mind as they set about reshuffling the genes which they handle so confidently.

- D. B. ADAM.

BLACK POINT IN WHEAT:

The 1948-9 wheat crop in Victoria has been remarkable for the extraordinarily high yields which have been obtained in many parts of the State, particularly on the black soils of the Wimmera. Because of the low temperatures in October and November black stem rust, which last season led to serious losses in many parts of the State, was not a problem.

Nevertheless this season, with its unexpectedly high grain yields, has had some disadvantages, and much of the grain is showing black point. The blackish discolouration is strongly developed in the tissues overlying the embryo.

In districts where rains have occurred subsequent to ripening, but before harvest, a blackish discolouration of the grain due to Hormodendrum cladosporioides (Cladosporium herbarum) has been fairly common. The sooty-black discolouration caused by this organism may occur on any portion of the grain and is frequently seen on the sides of the grains, where the separation of the glumes in ripening has allowed ready access of the fungus. Grain affected with this organism frequently has a very undesirable flavour when chewed, but this has not been observed with the black point trouble.

From grains affected with black point a number of different species of Alternaria have been isolated, as well as Helminthosporium sativum.

Black point is so widespread in this season's wheat in Victoria that many farmers will have no alternative but to save infected wheat for 1949 sowings. Such farmers have been advised to abandon the now universal "dry pickling" with basic copper carbonate (or copper oxychloride) in favour of organic mercury dusts.

There have been found to be marked differences between the various wheat varieties in respect to the percentage of grains affected with black point. The most severely affected variety is Quadrat. Indeed it would appear that most Quadrat crops in the State yielded grain affected with black point. Ghurka and Ghurka derivatives were also badly affected.

On the other hand black point was much less prevalent on Magnet and the early wheat varieties.

Victorian wheat is normally very free from black point although foot rot in our wheat crops is far from rare. This season the disease has been found in wheat grain samples from all

the principal wheat growing districts, being particularly prevalent in the Wimmera and North-East.

- H.A.J. PITTMAN.

DOWNY MILDEW OF WILD SORGHUM:

A downy mildew, Sclerospora noblei Weston, was described from Sorghum plumosum Beauv. collected at Glen Innes, N.S.W., in 1928. In February of 1948 and 1949 the oospore stage of this fungus has been found on plants at Hirstglen on the Main Range in Southern Queensland. Its Queensland host is Sorghum leiocladum (Hack.) C.E.Hubbard on which the typical frayed-leaf symptoms are well developed. The Queensland host plant is probably the same as that known in N.S.W. Sorghum plumosum and S. leiocladum are similar but distinct species which have only recently been distinguished. Their distributions overlap. The southern limit of the former is about the Tropic of Capricorn.

- R.F.N. LANGDON.

LEAF BLAST ON SUMMER GRASS (DIGITARIA SANGUINALIS):

Following a week of very high humidity and continuously showery and dull weather, summer grass (Digitaria sanguinalis) in the Hills district was severely affected with blast caused by the fungus Piricularia oryzae, Cav. Lesions first appeared on the young leaves as more or less circular water-soaked areas. The conidia, produced only in an atmosphere above 88 per cent. humidity, developed abundantly on these lesions in the field and were seen as bluish-grey masses on the undersurface of the leaves. In the advanced condition the whole plant was killed.

- N. H. WHITE.

DOLLAR SPOT OF TURF:

Dollar Spot is very prevalent on greens at the Canberra Golf Course. The causal organism has been determined as Sclerotinia homoeocarpa Bennett. It was stated by the green-keeper that treatment with a mixture of mercuric and mercurous chlorides had failed to control the disease, therefore an experiment was begun to compare the effectiveness of this treatment with that of three other more complex fungicides recommended for the control of turf diseases. No definite conclusion can yet be drawn, but at the time of writing, the mercuric and mercurous chloride mixture appears more effective than the other fungicides in the experiment.

- W.V. LUDBROOK.

CONTROL OF DOLLAR SPOT IN TURF:

Results of tests on several bowling greens in the Melbourne metropolitan area during the past two seasons have demonstrated the effectiveness of Puraturf 177 (phenyl amino cadmium dilactate) in controlling dollar spot caused by Sclerotinia homoeocarpa. The recommended dosage for the fungicide is one half pound in 50 gallons of water per 600 square yards applied every 10 to 14 days. This treatment has completely controlled the disease, whereas it has occurred to a serious degree in adjacent untreated areas. Treatment of turf with mercuric chloride 1½ ozs. per rink (240 square yards) every 14 days has not been effective in completely controlling dollar spot.

The possibility of increasing the interval between applications of Puraturf 177 is indicated by observation on one green. Here an area of 300 square yards was given a single treatment of Puraturf 177 at the rate of 4 ozs. in 12½ gallons. One month later a severe attack of dollar spot occurred on the unsprayed portions of the green, but not on the sprayed area.

To facilitate the application of fungicidal sprays to greens, a small power spray has been developed. The spray machine is mounted on wheels and consists of a spray tank of 25 gallons capacity and an electric motor which is coupled to a centrifugal pump operating at a pressure of 25 lbs. per square inch. The machine is located on the bank of the green and the fungicide is pumped through a long hose to a three foot spray bar with six spray nozzles. The spray bar is mounted on light wheels, which ensures that the nozzles are kept at a uniform height above the turf.

- C.R. MILLIKAN.

VEGETABLES:

A YELLOW MOSAIC VIRUS DISEASE OF BEAN (Phaseolus vulgaris L.)

A virus disease of dwarf and climbing varieties of Phaseolus vulgaris L., which produces symptoms similar to those described for the American yellow bean mosaic virus, has been recorded in Victoria.

The disease is widespread in urban areas, but is less serious than common bean mosaic disease in the seed growing districts of east Gippsland. The disease has probably been present in Victoria for a number of years, but its symptoms had previously been confused with those caused by the common bean mosaic virus.

In March, 1946, the writer observed severe infection in a garden plot of the climbing Blue Lake variety. The plants which became infected when they were about six feet high, developed strong necrotic symptoms, and subsequently died. As this variety was reputed to be resistant to the common bean mosaic virus, but highly susceptible to the yellow form, an attempt was made to identify the virus responsible for the disease.

Subsequent work has shown that the virus is sap inoculable and is capable of infecting all dwarf varieties of French beans commonly grown in Victoria. The varieties Brown Beauty, Hawkesbury Wonder, Canadian Wonder, and Startler Wax, are less susceptible than Blue Lake, but react quite severely to the disease. Feltham Prolific is the least susceptible of the varieties so far tested.

In 1947 McWhorter et al, in U.S.A. discovered that beans developed the yellow bean mosaic disease when grown in the proximity of gladioli infected with a mottle mosaic disease. As they obtained only a low percentage of successful transfers by sap inoculation methods the writer, in October, 1948, made collections of several species of aphids from infected gladioli in Burnley Gardens, and transferred them to bean, Trifolium incarnatum and T. subterraneum.

The most commonly occurring aphid was Macrosiphum gei Koch., and the virus was readily transferred to each of the above species, by means of this aphid. The symptoms produced on the plants were identical with those which developed after inoculation with sap extracts from naturally infected beans.

Gladiolus appears to be the principal reservoir of infection for this virus at Burnley and a high percentage of the plants was found to be infected. Infected plants show comparatively mild symptoms on the leaves which are not unlike the marks resulting from the feeding of thrips, but less severe. Symptoms were not observed on the flowers of infected plants.

Macrosiphum gei appears to be the principal vector in Burnley Gardens and, throughout October, large numbers were observed feeding on rows of infected gladioli, and on adjacent rows of newly emerged French beans, and peas, which eventually became 100 per cent. diseased.

The symptoms on peas were the same as those known to be caused by Aitken & Grieves' subterranean clover mosaic virus.

Virus isolates from subterranean clover, and a species of medic, are now being compared with isolates from bean and gladiolus. All of these isolates produce identical symptoms on Brown Beauty bean, but on Medicago alba symptoms vary slightly in

intensity. It is believed that these differences indicate strain variability rather than distinct virus entities.

Further work in progress is concerned with the host range of each of the various isolates, and there are indications that the gladiolus isolate, at least, may infect other non Leguminous species.

- L.L. STUBBS.

RUST OF DWARF FRENCH BEANS:

During March, 1949, a crop of French beans of the variety Brown Beauty was found affected with rust in the same locality (Berkeley Vale) in the Gosford district as that in which the disease had been observed in October, 1948, in Tweed Wonder beans. The severity of the symptoms suggested that it is probably the new sub-strain of race 17 identified by Professor W.L. Waterhouse in the case of the Tweed Wonder material. (A.P.D.R. 1: 6-7, 1949). Specimens of this rust on Brown Beauty beans have also been submitted to Professor Waterhouse.

In certification inspections of several hundred acres of dwarf French beans on the South Coast of New South Wales this season, no evidence of rust has been seen. The disease has been observed only in crops of the variety Epicure and on various climbing varieties in a seed company's experimental plot. Apparently the new strain of rust from the Gosford district is not present in the South Coast area.

- R.D. WILSON.

WHIPTAIL OF CAULIFLOWERS:

This condition occurs in many districts of Tasmania. A trial conducted in the Colebrook district showed that an application of ammonium molybdate at the rate of two ounces per acre given as a side dressing one week after planting out, gave good control of the trouble. The material was mixed with sand and sprinkled evenly along the rows. Applications of 4 ounces, 8 ounces and 1 pound per acre were also tried, but control was not markedly improved by the heavier applications. However, heavier dressings than 2 ounces per acre may be necessary on other soils.

- G. C. WADE.

POTATO VIRUS DISEASES:

Favourable weather conditions for the multiplication of insect vectors was experienced this season in the Victorian Central Highlands and Gippsland potato district during the early life of the crops. Current season infection by Virus Y (Rugose mosaic) was much in evidence in the Highlands area in Carman crops, and the variety Snowflake appeared to suffer more than usually. Potato Spotted Wilt virus was seen as a current season infection in all varieties in the Highlands and was most severe on Sebago and Carman. The same virus was in evidence in several sidely separated areas of Gippsland, where again its affect on Sebago and Carman was noted. In the field, Snowflake and Katahdin show less infection than other varieties, and the affect of the virus on individual plants is not as severe as in the case of Sebago and Carman.

- R.D. ANDERSON.

SPOTTED WILT EPIDEMIC IN GOULBURN VALLEY TOMATO CROPS:

Early in the present tomato growing season, spotted wilt caused heavy losses in the Shepparton district of Victoria. The disease continued to spread until the end of December, when the occurrence of high temperature conditions resulted in a rapid decline of the thrips population.

Spotted wilt is usually of minor importance in northern Victorian tomato growing districts, as temperatures are too high for vector multiplication during the growing season of this crop. This season, however, weather conditions in the spring and early summer approximated to those which normally occur in southern districts where spotted wilt regularly occurs in epidemic proportions.

- L. L. STUBBS.

TOMATOES AFFECTED BY METHOXONE RESIDUAL IN SOIL:

In January, tomatoes transplanted into a light sandy loam (pH 6.9) on which Chenopodium sp. had been sprayed, three months previously, at the rate of 18 gallons per acre with 1:50 Methoxone, developed a distorted growth habit within a few days. The main shoots were permanently dwarfed but vigorous laterals appeared a fortnight later, and subsequent growth was normal.

- W.S. SUTTON.

FRUIT:

MINERAL DEFICIENCIES OF APPLES:

Typical "little leaf" was found in the New Norfolk and West Tamar districts, and control by winter spraying with 50 lbs. of zinc sulphate per 100 gallons was demonstrated in both localities. An apparently similar condition was noted at Grove (near Huonville) and in the Tasman Peninsula.

Symptoms of manganese deficiency were found in the Dover and Huonville districts. Control by spraying with manganese burgundy mixture a fortnight after the calyx stage, was demonstrated at Dover.

- G. C. WADE.

BROWN ROT (Sclerotinia fructicola) OF APRICOTS:

This disease caused very serious loss of apricots in Tasmania this season. The weather during the late spring and early summer was very humid, and the disease developed very rapidly as the fruit ripened.

Experimental evidence indicated that Bordeaux mixture was more effective than copper oxy-chloride in controlling blossom blight infection. "Shirlan AG," "Isothan Q15", wettable "Tetroc" and "Fermate" were tried as cover sprays. "Tetroc" caused irregular chlorotic blotches on the leaves but this was not serious, and there was no fruit injury. None of the other treatments caused any injury, although the season was favourable to development of spray injury. However, "Fermate" left a fairly conspicuous black deposit. All treatments reduced the percentage of brown rot from an average of 45% for untreated trees to about 20%, but the experiment was not on a sufficiently large scale to distinguish between treatments. As these treatments appear safe, and promising, they will be tried on a larger scale next season.

- G. C. WADE.

POWDERY MILDEW OF PEACHES:

Powdery Mildew, (*Sphaerotheca pannosa* (Wallr.) Lev. var. *persicae* Woronich,) has made its first appearance in a commercial peach orchard in New South Wales, the outbreak being at Stanbridge on the Murrumbidgee Irrigation Areas.

This disease was first recorded on peach in N.S.W. in 1892. Its subsequent occurrence has been restricted to occasional fruits, mostly in trees in garden lots. It was recorded on nursery trees in 1946.

In the current outbreak, the varieties Phillips' Cling, Elberta, Golden Queen and Pullar's Cling are severely infected, the fruit being extensively scabbed. There is some slight malformation of severely-affected fruits, but no cracking was noticed when the trees were inspected on 20/1/49. There was no evidence of foliage or shoot infection at that date.

The occurrence of this disease on the M.I.A. is rather alarming, for conditions there should be ideal for the development of powdery mildew, viz., periodical high humidity following irrigation, allowing of spore germination and host penetration, with a subsequent dry atmosphere favouring further development.

As it is proposed to conduct an experiment next spring to discover the most effective control measure under M.I.A. conditions, observations on this disease, with particular reference to control treatments in other States, will be welcomed in the next issue of the Recorder.

- K.E. HUTTON.

BORON DEFICIENCY IN PEARS:

Two trees of the variety Winter Cole in a 15 years' old orchard at C.S.I.R. laboratories Canberra were examined in February, 1949, following a report of serious fruit splitting. The two trees are adjacent, on a stony outcrop. Surrounding apple and pear trees appear normal.

The twig and foliage symptoms in both trees conformed to the description of boron deficiency given by Ferguson and Holbeche (N.S.W. Ag. Gaz. V57, pp. 241-243, 1946), but the fruit symptoms in only one tree were typical for the variety. In this tree fruit was very small and all were affected. In the other tree fruit symptoms were confined to two branches and took the form of large, simple longtitudinal cracks, with secondary simple cracks girdling the fruit at the point of greatest girth.

Boron deficiency symptoms have been repeatedly noticed in swede turnip and cauliflower crops in home gardens in the city area.

- J.H.E. MACKAY.

POWDERY MILDEW OF PEARS:

Powdery mildew developed on Packham pears at Nubeena in the Tasman Peninsula. Both fruit and young shoots were affected, but no serious damage resulted. This occurrence is most unusual in Tasmania and was not detected in any other districts.

- G. C. WADE.

STRAWBERRY ROOT ROT:

Wilt (A.P.D.R. 1: 10: 1949) is one of the most important diseases affecting the strawberry crop around Sydney. Plants collapse in the late spring when in heavy bearing and quite often recover during the summer. Rhizoctonia solani is constantly associated but Cylindrocladium sp. has not been observed. The use of runners from infected beds is a frequent cause of loss.

- L.R. FRASER.

SEPTORIA LEAF SPOT OF BLACK CURRANT:

A small scale experiment showed that spraying with di-nitro-ortho-cresol (Shell Winter Spray) 1 in 40 at leaf fall in the autumn reduced the carry-over of the disease. The leaves remaining on the bushes, and fallen leaves below the bushes, were sprayed on the 21st May. Varieties Goliath, White Bud and Carter were sprayed, and they did not show ill effects in the subsequent season.

Counts of perithecia of the Mycosphaerella stage on leaves below bushes in the spring showed that treatment reduced the number per square centimetre from 500-700 to 30-150. Lime sulphur (1 in 10 and 1 in 20) was ineffective in reducing the number of the perithecia.

Slides, smeared with vaseline, were suspended above fallen leaves in the field and it was found that ascospore discharge occurred in mid-September.

- G. C. WADE.

SPUR BLIGHT OF RASPBERRY:

This disease was detected on raspberries of the Red Antwerp variety in the Longley district in February of this year. It has not been previously recorded in Tasmania, though it is unlikely that it is a new introduction. Although the disease is regarded seriously in some overseas countries, it appears to cause little damage here, and in the cases observed its attack was confined to the basal buds of affected canes. A fungus resembling the conidial stage of Didymella applanata was isolated consistently from affected canes, but it has not yet been definitely established as that fungus.

- G. C. WADE.

ORNAMENTALS:

ENTYLOMA LEAF SPOT OF CALENDULA:

This disease develops on Calendulas in Hobart during the summer months each season. The round black spots are most disfiguring. Other common fungal diseases of ornamentals are Ramularia primulae on Polyanthus, rust on hollyhocks and carnations, Heteropatella antirrhini on antirrhinum and Botrytis corm rot of gladioli.

- G. C. WADE.

SCLEROTINIA CORM ROT OF GLADIOLUS:

A corm rot of Gladiolus occurring in 1948 in the stored nursery stocks of the Parks and Garden Section, Department of Interior, Canberra, was diagnosed as being caused by Sclerotinia sp., probably S. gladioli. The corms showed circular light brown rotting areas varying from $\frac{1}{8}$ - 1" in diameter and extending deep into the tissues.

The corms were reported to have been quite healthy in appearance when dug in 1948. They were stored in seedling flats or cane baskets in a poorly ventilated room. Due to lack of storage space it was impossible to spread the corms out to facilitate inspection and culling after the disease had been diagnosed. This enforced admixture of healthy and diseased corms doubtless contributed to the seriousness of the outbreak.

Although the nursery staff suspect that there has been a slight amount of disease in recent years this is the first time

that the effects have been serious enough to cause appreciable loss. The disease was so severe that, from July (when rotting was first noticed) to October, 80% of the original 80,000 corms were culled and destroyed. Although final culling at planting was extremely rigorous, and the crop was planted in a new area, some plants are showing foliage symptoms of the disease.

- D. O. NORRIS & J.H.E.MACKAY.

LEAF SPOT OF LABURNUM:

In parts of Europe Ceratophorum setosum Kirchner causes a very serious disease of the white lupin (Lupinus albus), attacking leaves, stems, pods and seeds and making it uneconomic to grow this crop in some localities. It attacks many species of lupin and also Cytisus laburnum (Laburnum vulgare) and C. capitatus.

The fungus was recorded for the first time in New South Wales recently, when it was identified on a specimen of Laburnum vulgare taken from a private garden at Wentworth Falls (Blue Mountains). The leaves and young stems of the affected shrubs were heavily spotted and some defoliation had resulted from the attack. It is proposed to test the susceptibility to this disease of the lupin species commonly grown in N.S.W. Information as to its occurrence elsewhere in Australia would be welcomed.

- L. R. FRASER.

POPLAR LEAF BLISTER:

Yellow leaf blister (Taphrina aurea) of poplars (A.P.D.R. 1: 13: 1949) was recorded in New South Wales in 1926. It occurs every spring, except in very dry seasons, in various localities in the tablelands on the Lombardy poplar (Populus nigra var. italica).

- L. R. FRASER.

MISCELLANEOUS PLANTS:

RUST ON LOBELIA (PRATIOIDES?):

The note on "Rust on Lobelia concolor", which appeared in the Australian Plant Disease Recorder, Vol. 1, p. 13, has drawn attention to an unnamed specimen in the herbarium of the Plant Research Laboratory, Burnley, Victoria.

This is a rust on purple Lobelia, collected by G.A.A. Baker and E.E. Pescott, from Swan Hill, Victoria, in September, 1937. The host species is not the same as that referred to by Professor Waterhouse; it has been identified by J.H. Willis, as probably Lobelia pratioides Benth. However, in the Rusts of Australia p. 149, McAlpine has recorded Puccinia aucta Berk. and F. v. M., on both Pratia erecta Gaudich., Syn. Pratia concolor (R. Br.) Druce, and on Lobelia pratioides.

Teleutospores have been described on leaves of Lobelia anceps L.

- EILEEN E. FISHER.

TOMATO SPOTTED WILT VIRUS ON NICANDRA PHYSALOIDES (APPLE OF PERU):

In the Cumberland District of N.S.W. during January many plants of the weed Nicandra physaloides showed a severe top necrosis. This was caused by systemic infection with the tomato spotted wilt virus.

- N. H. WHITE.

PLANTAGO SCAB:

Sphaceloma plantaginis Jenkins & Bitanc. was recorded on Plantago lanceolata near Sydney in March, 1949. The outbreak followed a period of intermittent rain. Infection was heavy; petioles, peduncles and leaves were distorted in a way reminiscent of violet scab. The disease was first described in the United States in 1946 on Plantago major and P. ringelii, and the earliest known record was based on a specimen collected in Maryland in 1891. It does not appear to be known outside the United States. To date, it has only been observed in one locality near Sydney.

- L. R. FRASER.

WHITE RUST ON CONVOLVULUS SP.:

Specimens of an, as yet, undetermined species of Convolvulus showing infection with white rust (Cystopus ipomeae-panduratae) (Schw.) Stew. & Sw. were recently received from Carr's Creek on the North Coast. This is the first record of white rust on Convolvulus in N.S.W.

Physiological strains of C. ipomeae-panduratae have been reported from overseas on various members of the Convolvulaceae, including Ipomoea batatis. Whether the above-mentioned Convolvulus attacking strain is able to infect sweet potato is not yet known.

- R.J. CONROY.

GENERAL AND MISCELLANEOUS NOTES:

EFFECT OF VIRUSES ON PLANT METABOLISM - VIRUS ABSORPTION BY PLASTIDS:

As part of a programme of investigations on the effect of viruses on plant metabolism, the phenomenon of virus absorption by chloroplasts is being studied. If virus absorption by chloroplasts is established, then it is proposed to study the effect of the virus on the oxygen output (photosynthesis) by the chloroplasts when exposed to standard light and temperature conditions.

The technique of plastid preparation from virus-free leaves of potato has been determined. This consists of maceration of the virus-free leaf tissue in a buffer solution followed by filtration, washing and centrifugation of the chloroplasts in the buffer solution. It is now proposed to study the absorption by plastids, prepared in this manner, of a mixture of strains of virus X of potato.

- N. H. WHITE.

SEVERITY OF MANGANESE AND MOLYBDENUM TOXICITY SYMPTOMS IN PLANTS AFFECTED BY NITROGEN SOURCE.

Results of water culture experiments with flax, field peas, cauliflowers and subterranean clover, have shown that at a given concentration of manganese or molybdenum respectively, the severity of symptoms was dependant on the amount and form of

nitrogen supplied to the solution. Thus with excess manganese, plant symptoms were most severe in nutrient solutions supplied with nitrogen as nitrate, and were absent in nitrogen deficient solutions or those supplied with nitrogen as ammonium. The severity of manganese toxicity symptoms in plants grown in nutrient solutions containing ammonium nitrate was intermediate.

By contrast, at a given excess of molybdenum in the nutrient solution, toxicity symptoms in the test plants were most severe in the nitrogen deficient or ammonium solutions, were intermediate in severity in ammonium nitrate solutions, and were least severe in nutrient solutions supplied with nitrate.

Tests with one per cent. diphenylamine in concentrated sulphuric acid on flax and cauliflower plants affected with manganese toxicity symptoms, have shown that such plants have a higher nitrate content than normal.

- C. R. MILLIKAN.

CULTURE MEDIUM FOR PHYTOPHTHORA INFESTANS:

Dickinson and Keay published in Nature 162/4105 details of a medium for growing Phytophthora infestans in culture. It consisted of pea flour, sucrose, agar and water, the pea flour being made from young pea seedlings grown in sand under glass, the upper parts being harvested, dried and ground into powder.

We have found this medium easy to make and handle, and have obtained good growth of P. infestans at 14°C., slopes being covered after 10-14 days. Spores were produced as well as mycelium, and were used to infect potato seedlings.

- DOROTHY E. SHAW.

AURICULARIA MESENTERICA (DICKS.) FR. - RESEMBLANCE TO STEREUM PURPUREUM:

It is worth drawing attention to the close resemblance of the fructifications of A. mesenterica and S. purpureum. In the fruit-growing areas behind Adelaide, silver-leaf is quite a common disease of orchard trees, and Mr. D.T. Kilpatrick, district horticultural adviser, has been keeping a close watch for the fructifications of S. purpureum on all kinds of trees and bushes. In addition to finding them on the orchard trees

usually affected, he has found it on broom (Cytisus scoparius) and on tagasaste (C. prolifer). At one time it also seemed that Acacia decurrens and A. baileyana might be added to the list because very similar fructifications were found on these trees. They were, for the most part, thin, resupinate structures, though their edges were rather more reflexed than is commonly found with S. purpureum. The hymenium was smoother and purplish coloured but resembled that of S. purpureum very closely. However, Miss Wakefield, through the kind offices of C.M.I., identified the fungus as A. mesenterica, a species referred to by M.C. Cooke in Australian Fungi as having been collected from Western Australia and Queensland.

There is one further point which may assist others. We obtained only one good group of fructifications. As received they were, of course, quite dry and had thin edges but in disinfecting them prior to despatch we did notice that they became rather more gelatinous. The possible significance of this did not strike us at the time but it might facilitate future identification.

- D. B. ADAM.

WHERE IS AUSTRALIA'S BEST MYCOLOGICAL HERBARIUM?:

In A.P.D.R. 1 : 1 : p.15, the above question was raised.

The Mycological Herbarium of the Victorian Department of Agriculture, which is located at the Plant Research Laboratory, Burnley, contains approximately 9000 specimens, 3000 of which constitute the extra Australian section.

This Herbarium was founded by Daniel McAlpine in 1890 and has been built up over the past 59 years. Many type specimens of Rusts and Smuts are included in this collection and very fine additions to the Extra Australian section have been received from the late Professor Farlow, Professor T.S. Johnson and others.

Specimens have been loaned, from time to time, to various workers within the Commonwealth, Ceylon, India, England and America.

The following quotation is taken from a letter to Mr. Daniel McAlpine from C.A. Brittlebank, dated 15/5/28 -

"The Herbarium too has increased to a good extent. I exchanged with South Africa and the U.S.... Dr. Butler of Kew and Professor Stakman of St. Paul told me that they considered it the best south of the line".

- S. FISH.

WOULD A PUBLICATIONS SECTION HELP?

Most pathologists spend some part of their time in the field and are at times out of touch with current literature as it arrives in their libraries. They may even lack adequate library facilities for varying periods. It is suggested that the Recorder may be used as a means of bringing publications of Australian pathologists promptly to the notice of their colleagues. The only way in which such a service could operate would be for the author to supply the necessary information to correspondents or to the Editor.

Even though one may fail to see some journals the Recorder will be delivered to us personally every quarter and if a list of publications was included it should help us to keep abreast of developments. While realising that pathology papers are adequately reviewed in the Australian Journal of Science it is felt that this method of helping ourselves would be of use.

The opinions of others would be appreciated.

- J.H.E. MACKAY.

CONFERENCE ON PLANT PATHOLOGICAL AND MYCOLOGICAL PROBLEMS.

Over twenty years have elapsed since the last meeting of Australian plant pathologists and mycologists was held. The present world food position justifies the holding of a meeting at an early date to consider and report on losses in foodstuffs and materials and how these losses may be reduced or avoided.

The Standing Committee on Agriculture recommended to the Council of Ministers of Agriculture that a conference be held under the aegis of C.S.I.R. at an early date to deal with these matters and Council agreed.

It is planned that the conference be held in Melbourne, May 23-27 next, and that each Department be represented by two officers and each University doing work in this field by one.

The organisation of the conference will be the responsibility of the Division of Plant Industry.

- B. T. DICKSON.

COMMONWEALTH MYCOLOGICAL INSTITUTE NOTES.

1. New Technical Communications:

The following new publications of C.M.I. are in the press or in preparation:-

In press.	In preparation.
1. "British Smuts"	1. "List of Trinidad Fungi".
2. "The Plant Diseases and Fungi recorded from Mauritius".	2. "Revisions of the genus Torula (i) The British species. (ii) History of the Genus".
3. "Fungi of Barbados and the Windward Islands".	3. "Studies in Hyphomycetes - a series of papers".
4. "A list of Plant Diseases of economic importance in Tanganyika Territory."	4. "A revision of the British Hyaloscyphaceae, with notes on related European species".
5. "New Technique for mounting Fungi".	5. "Wilt of Calophyllum inophyllum L. var. tacamaha (Willd.) R.E.V. caused by Haplographium calophylli sp.n. in Mauritius".
6. "Terminology for use in the genus Phytophthora".	6. "Melanopsanna pomiformis and its strachybotrys conidia".
	7. "British species of Periconia".

2. Conference of Official Correspondents of Commonwealth Agricultural Bureaux:

A conference of the above has been set down for 20/5/49 in Melbourne when, inter alia, matters affecting the progress of the C.M.I. will be discussed. I would be glad to receive suggestions for increasing the usefulness of the C.M.I. to Australia, such as subjects for new technical communications, or new services which could be given.

- C.J. MAGEE.